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MEMORANDUM FOR: [REDACTED]

SUBJECT: Possible External Research Project on Energy Consumption
in the European Satellites

1. One of the major gaps in our research is a careful study of energy consumption in the European Satellites. For lack of such a study we have been using "apparent consumption", i.e., production + imports - exports = consumption. One of the obvious difficulties with arriving at consumption this way is that no distinction can be made between industrial consumption and consumption in non-industrial uses. One instance in which this has detracted from the quality of our other research is a paper that [REDACTED] has just finished. He correlated industrial growth with energy consumption in an attempt to establish the relationship that has existed in the past. He then uses the past relationship in evaluating whether or not plans for future industrial development and probable future production of energy are in balance. He has come to the conclusion that the Satellites within the next few years will cease to be net exporters of energy and will become substantial net importers. The Soviet Union will be able to supply the energy necessary to support planned rates of industrial growth through 1965, but the Satellites will have to import energy from outside the Bloc by 1975, unless the rate of industrial growth in the Satellites is to decline. We don't think that inclusion of energy consumed for non-industrial purposes invalidates his correlation or his conclusions. However, such consumption should, properly, be excluded. There have been other instances (NIS and NIE contributions) in which we have settled for second best because no detailed consumption study has been done. The above story is simply a recent illustration.

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2. I have seen enough scattered information in overt literature to believe that such a study could be done, at least for some of the Satellites, from open source materials. Unfortunately our commitments for preparation of NIS and NIE contributions, and for doing other long deferred studies, preclude our undertaking such a project in the near future. The only hope would appear to be an external research project. Consequently, the Division has requested that [REDACTED] be budgeted in Fiscal 1961 for such a project. I'm not sure whether we can get the entire project for that, or only certain Satellites. I pulled the figure out of the air, on the basis of what we paid for some other things [REDACTED], when we were asked for budget estimates on rather short notice. Of course we won't know until about a year from now whether the item actually will be approved in the FY-1961 budget and until we have funds we can't negotiate any contract. This would mean that no research could really begin on the project for more than a year. However, it would be useful to begin exploring who might undertake such

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a project, get an estimate of cost, and possibly line up a contractor on a preliminary basis (everything being conditional upon our being able to find the money). If someone were interested in such a project he might at least begin watching for materials even though no final contract had been negotiated. Two other thoughts occur to me on the subject of financing. We used to budget fairly substantial amounts for external research in Strat. We cut down the amount in the last couple of budgets that I knew anything about, because there had been so little interest shown in such activity. Do you still have funds in your budget for external research projects? The other possibility is that some project now scheduled for FY-1960 will be cancelled or will take less money than is now anticipated. In this case there might be extra funds available before the end of FY-1960, and we might be able to negotiate a contract in the spring, commit the funds, and then actually expend them after the project was completed - even though that might be in FY-1961. My guess is that such a project would take about a year, unless it is broken up among several people.

3. There is not too much point in trying to work out a detailed outline of the project until there has been some exploration of whether anyone can undertake it and what appears feasible on the basis of available material (also until the money is available). Uniformity from commodity to commodity probably is not necessary or even desirable, and there will be differences between countries too. However, it might be useful to you to have some rough idea of the type of breakdown desired.

a. Coal

The principal consumers of coal would be electric power generation, transportation, the metallurgical industries (in some countries some breakdown might be desirable, in others unnecessary), other industry, household and other non-industrial uses. In the case of East Germany use as a chemical raw material should be broken out of "other industrial use". Too much goes into production of synthetic liquid fuel and other chemical processes to be lost in a residual. The same sort of thing may be true for some of the other countries, but for some it would make no sense to carry a category "chemical raw material".

b. Petroleum

Two types of breakdown would be useful here: a product breakdown and a consumer breakdown. For example, a breakdown by military consumption and civil consumption would mean less than a further breakdown under these categories by type of product. The military consumption probably should at least be broken down by motor gasoline, aviation fuels, diesel fuel, and lubricants. Civil consumption might be broken down by

such consumers as transport, agriculture, households, construction, and industry. Again a further breakdown by type of product and by sub-category of consumer would be desirable, and probably necessary in arriving at the estimate. For example: rail transport consumption may have to be estimated on the basis of the number of diesel locomotives and the ton/kilometers hauled by them. Motor transport consumption probably would be based on data on the automotive park, subdivided by type of vehicle (truck, bus, passenger car, motorcycle, further subdivided by type of fuel used, i.e., diesel or gasoline), operational movement data (kilometers loaded and empty), and average consumption norms (liters per 100 km.). Ocean-going and inland waterway transport would probably be based on the type of vessel (including type of fuel used) and the passenger or ton/kilometers hauled. Agricultural consumption probably would be based on such factors as the tractor and self-propelled machine park, performance, and consumption norms. Performance probably would be measured in some sort of deep plowing unit such as those used on pp. 364-365 of the Statistisches Jahrbuch der DDR, 1957. You will get some guidance on methodology by reading Civil Consumption of Petroleum Products in the USSR, 1953-57, RA-59-3, March 1959. I hope you have a copy by now.

c. Electric Power

The major breakdown probably would be industrial use and household and other non-industrial use. A good example of a breakdown of industrial use appears on pp. 314-315 of the Statistisches Jahrbuch der DDR, 1957.

4. Since the different types of energy normally are measured in non-comparable units of measure it would be necessary to convert them to a standard unit. Probably the best one to use is the standard fuel or hard coal equivalent (Steinkohlensinheit) defined as 7,000 kilocalories per kilogram (Wärmeeinheiten). This unit is used in a lot of the Bloc publications and is familiar

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(We would be interested in this period, or in 1950-59). I don't know what the basis of the consumption figures is. Maybe it is apparent consumption such as we have been using. On the other hand, maybe some work of the sort we are interested in already has been done. In any case, I would suggest that Jim talk to [redacted] about the article and try to find out what has been done and what [redacted] thinks could be done.

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